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December 6, 2017

***By Electronic Filing***

Ms. Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

**Re: SES Notice of *Ex Parte* Presentation, GN Docket No. 17-183**

Dear Ms. Dortch:

On December 4, 2017, representatives of SES met with personnel from the of the International Bureau ("IB"), Wireless Telecommunications Bureau ("WTB") and Office of Engineering and Technology ("OET") to discuss the above-referenced proceeding. The IB representatives were Tom Sullivan, Jim Schlichting, Jennifer Gilsenan, Robert Nelson, Jose Albuquerque, Karl Kensinger, Christopher Bair, and Diane Garfield (participating by telephone). The WTB representatives were Neşe Guendelsberger, Matthew Pearl, Blaise Scinto, Peter Daronco, Paul Powell, and Ariel Diamond. The OET representatives were Julius Knapp, Michael Ha, Bahman Badipour, and Nicholas Oros (participating by telephone). Participants in the meeting on behalf of SES were Gerry Oberst, President of SES Americom, Inc., Kimberly Baum, SES Americom Vice President, Spectrum Management & Development Americas, as well as outside counsel to SES Michele Farquhar of Hogan Lovells US LLP and the undersigned. The discussion covered a number of points raised by SES and by the Satellite Industry Association in their comments and reply comments in this docket.

SES discussed its history as a C-band satellite service provider and described its cable neighborhood architecture, which allows content providers to efficiently deliver programming nationwide to cable head ends, which then distribute the programming to consumers in their cable systems. SES emphasized the importance of C-band satellite capacity not only to cable operators, but to other media industry members as well, noting that virtually all of the video and audio programming enjoyed by U.S. consumers travels over a C-band satellite at some point in its journey to the end user. In many cases, content providers have contracted with SES for protected service that ensures their ability to switch to alternate satellite capacity in the event of an outage affecting the customer's primary satellite facility.

In addition to content delivery, SES highlighted a variety of other critical services that rely on C-band satellite capacity. For example, SES noted that C-band satellite services are used by government agencies to support missile defense, provide wideband communications to U.S. Navy ships, facilitate air traffic control, and distribute weather data that is important to public safety. In remote areas such as Alaska, C-band satellites often are the only available communications technology, providing basic voice service, telemedicine, and distance learning, as well as more advanced broadband functionality. A number of entities use C-band satellite

capacity to distribute Emergency Alert System warnings, and C-band satellites also provide restoration service after hurricanes or other disasters.

SES noted that satellites intensively use C-band frequencies, with 48 satellites authorized to serve the U.S. spaced every two degrees across the available orbital arc, fully reusing the spectrum at each location. At least two dozen of these spacecraft have full CONUS coverage.

SES commented that despite the record showing robust use of C-band satellite capacity, terrestrial interests claim that C-band satellite spectrum is underutilized, due in large part to the fact that most earth stations used to receive C-band programming content are unregistered. SES noted that registration of receive-only terminals is voluntary and provides little benefit, since it only protects the earth station from subsequent C-band microwave links, and microwave use of C band receive frequencies is extremely limited. In contrast, registration is fairly costly, requiring payment of a $435 fee per site and submission of a coordination report that typically costs approximately $700. As a result, many receive earth station operators have chosen not to register their facilities. For example, the American Cable Association has estimated that 90% of its members' receive earth stations are unregistered, and if this rate is typical of C-band users, there could be more than 30,000 receive-only earth stations in total.

SES emphasized that its contracts are with content providers who purchase satellite capacity, and that because SES does not have direct agreements with cable providers and other operators of receive-only earth station facilities, it does not know how many earth stations are receiving the signal provided over any given SES transponder. SES noted that a typical cable head end has 11-15 antennas pointed at different satellites in order to receive a robust package of programming.

SES stated that it has been encouraging its customers to register their earth stations and also urging the Commission to streamline the registration framework to make it simpler and more affordable. For example, SES has suggested that the Commission could undertake a two-step procedure, collecting basic location information first through a simplified online data entry process with no fee and subsequently conducting a more complete antenna registration, but with significant modifications to encourage participation. Specifically, SES has argued that the Commission should waive or significantly reduce the registration filing fee and eliminate the coordination requirement for receive-only earth stations.

SES also described its concerns about the potential negative effects of introducing terrestrial mobile services into heavily-used C-band spectrum. SES argued that forced sharing would be a lose-lose proposition, as it would create risks to existing satellite services while creating almost no opportunity for new terrestrial operations.

To illustrate this problem, SES provided copies of maps it included in its reply comments that depict 30- and 70-kilometer distances surrounding the receive earth stations listed in the FCC's database.[1] These distances were derived from calculations by Ericsson that even under the best circumstances, avoiding co-channel interference to a receive earth station would require a

[1] Reply Comments of SES Americom, Inc., GN Docket No. 17-183, filed Nov. 15, 2017 at 20-23.

separation distance greater than 30 kilometers, and that distance would be up to 70 kilometers with more typical earth station operating parameters and taking into account the greater levels of protection that high-reliability C-band links require.[2] Because they reflect only licensed or registered earth stations, the maps substantially underrepresent the extent of the protection zones that would be needed to prevent interference to active receive earth stations, but even protecting this limited subset of antennas would clearly preclude terrestrial operations in much of the U.S.

SES questioned whether a database approach such as the one adopted for the 3.55-3.7 GHz band could work for conventional C-band receive frequencies. In particular, SES observed that the database has not yet been tested in the frequencies below 3.7 GHz, and there are many times more earth stations in use in the 3.7-4.2 GHz band, most of which are not registered with the Commission.

SES also argued that proposals from wireless interests for replacing C-band capacity using fiber or other satellite spectrum are not workable for programming distribution. Fiber lacks the ubiquitous geographic reach of C-band satellites, and forced migration to fiber would therefore leave many video providers in smaller cities and rural areas without cost-effective access to programming and advanced video services. For example, the approach described by Verizon – reliance on a small number of "super" head ends with fiber links to distribute content from the head ends to other Verizon markets – is not an option for systems beyond the reach of the limited fiber infrastructure.

Ku- and Ka-band satellites are more susceptible to rain fade and cannot provide the near-perfect reliability of C-band satellites. Although SES has two content provider customers that rely primarily on Ku-band spectrum for video distribution, they use C-band as back-up to ensure service is not interrupted during rainstorms. In any event, there is not sufficient available capacity on Ku- and Ka-band satellites to take over the load being carried on C-band spacecraft.

SES noted that the strength of demand for C-band spectrum on the part of the terrestrial wireless industry is unknown, particularly given that other frequency segments are being made available for terrestrial mobile operations. SES observed that around the globe there is no substantial use of the 3.7-4.2 GHz band for terrestrial mobile service and therefore no meaningful prospect of spectrum harmonization across the band. The limited interest in these frequencies internationally is focused below 3.8 GHz.

SES stated that it is examining proposals in the record, including the framework suggested by Intelsat and Intel for a market-based solution, as well as brainstorming about other ideas that could preserve satellite access to C-band spectrum for highly reliable programming distribution services while accommodating expanded terrestrial use. SES emphasized that it strongly opposes any suggestion that the entire 500 MHz of C-band downlink spectrum could be made available, as that would not allow SES to continue providing important services to its customers. Even freeing up even a limited portion of the C-band spectrum would be immensely difficult and

[2] Comments of Ericsson, GN Docket No. 17-183, filed Oct. 2, 2017 at 8 and Attachment A.

costly. Due to its network design and planning, SES's center-of-the arc cable neighborhood spacecraft are fully loaded, and SES does not have sufficient alternative C-band capacity elsewhere in its fleet with the 50-state coverage necessary for video distribution customers. Moreover, SES would need ongoing protected access to frequencies used for telemetry, telecommand, and control ("TT&C") at its existing TT&C sites, as the band-edge TT&C frequencies in use on in-orbit SES satellites cannot be changed.

SES reiterated that to be viable, any approach would need to compensate and incentivize incumbents given their substantial investment in C-band satellite networks and the complexity of existing operations. SES stated that it is reviewing Commission precedent and models to explore options for expanding terrestrial use of C-band receive frequencies while maintaining SES's ability to continue providing highly reliable services that benefit U.S. consumers nationwide.

Please address any questions regarding these matters to the undersigned.

Respectfully submitted,

*/s/ Karis A. Hastings*

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Attachment

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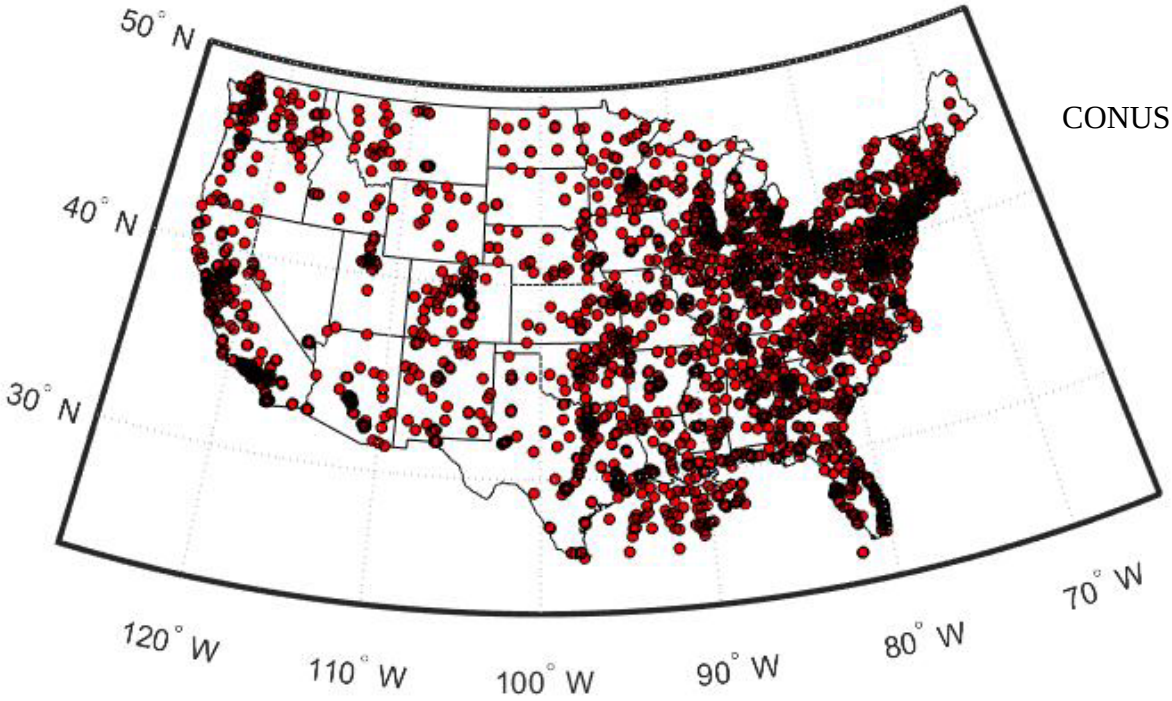
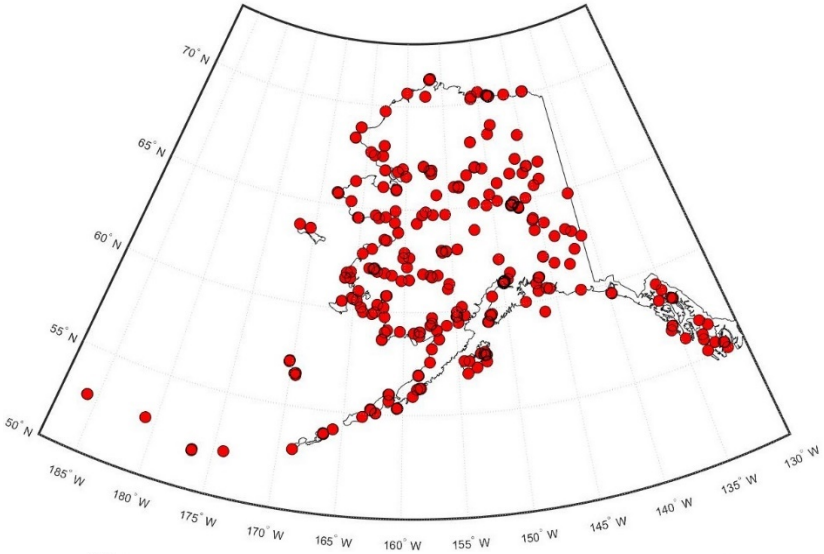
Julius Knapp
Robert Nelson
Nicholas Oros
Matthew Pearl
Paul Powell
Jim Schlichting
Blaise Scinto
Tom Sullivan

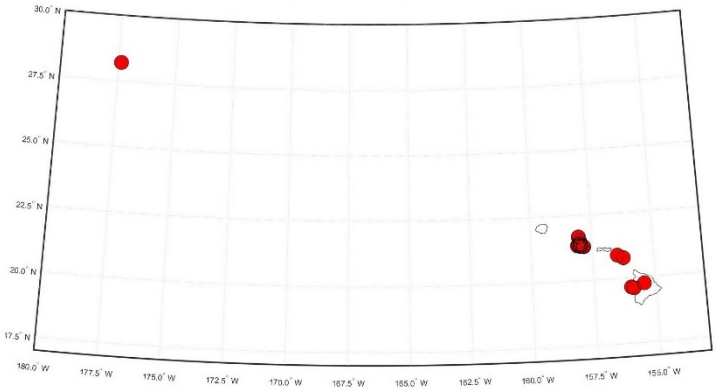
30-Kilometer Zones




CONUS

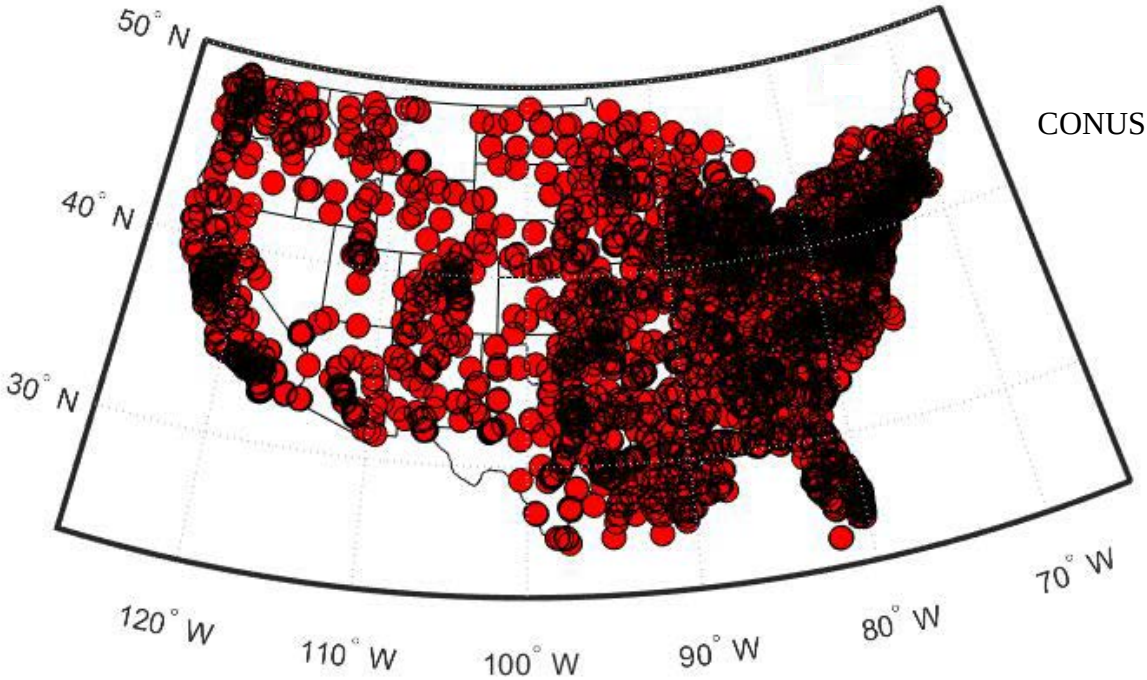



Alaska




Hawaii and the Midway Atoll

70-Kilometer Zones

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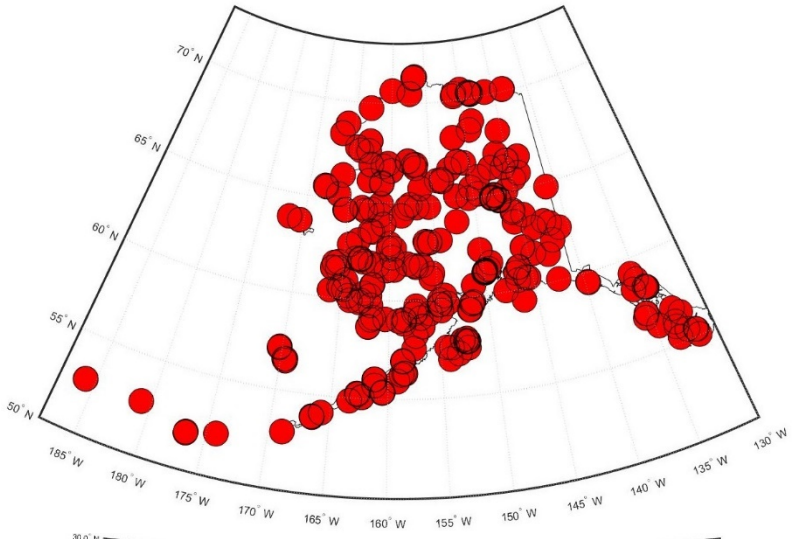
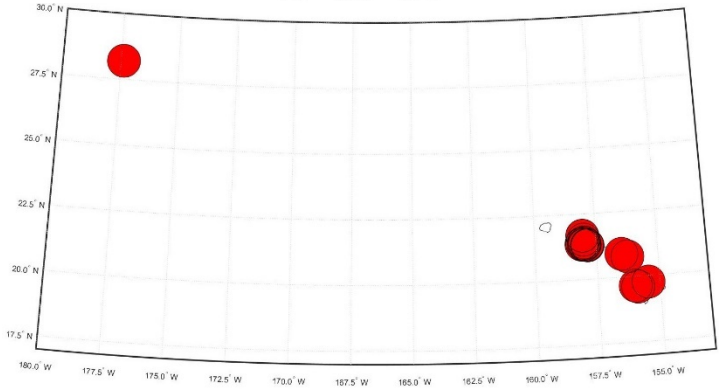



Alaska




Hawaii and the Midway Atoll